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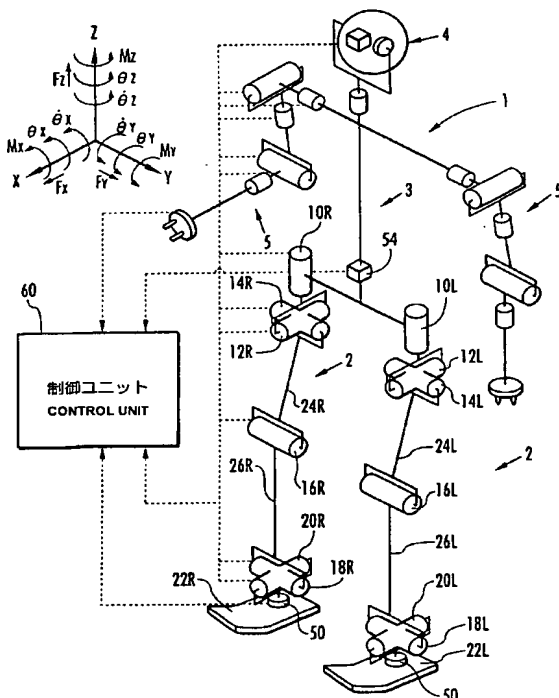
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(54) Title: CONTROL DEVICE AND FOOTSTEP DETERMINATION DEVICE FOR LEGGED MOBILE ROBOT

(54) 発明の名称: 脚式移動ロボットの制御装置および足跡決定装置



(57) Abstract: A control device and a footstep determination device for a legged mobile robot, wherein the landing position and landing direction of a foot (22) landing in the landing operation of the robot (1) such as a bipedal mobile robot are estimated and the target footstep route of the robot (1) is set up, future target landing position and target landing direction are determined based on the estimated landing position and landing direction and the target footstep route so that the actual footstep route (rows of landing positions and landing directions of the foot (22)) of the robot (1) near the target footstep route, the target gait pattern of the robot (1) is determined by using at least the determined target landing position and target landing direction, the operational control of the robot (1) is performed according to the target gait pattern, and when the target landing position and landing direction are determined, the mechanical restricting conditions of the robot (1) itself such as an interference between leg bodies and the restricting conditions in the target ZMP presence allowable range.

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ABSTRACT

A landing position/orientation of a foot (22) to be landed in a landing action of a robot (1) such as a bi-ped mobile robot or the like is estimated, and a desired footstep path for the robot (1) is set up. Based on the estimated landing position/orientation and the desired footstep path, a future desired landing position/orientation is determined in order to cause actual footsteps of the robot (1) (a sequence of landing positions/orientations of the foot (22)) to approach desired footsteps. Using at least the determined desired landing position/orientation, a desired gait for the robot (1) is determined, and the robot (1) is controlled in operation depending on the desired gait. For determining the desired landing position/orientation, mechanism-dependent limitations of the robot (1) such as an interference between the legs thereof, etc., and limiting conditions of an allowable range in which a desired ZMP can exist are taken into consideration.